Third Grade

The Story of a Forest

Introduction

Hello! My name is _____, and I work for the _____ National Forest. Today, we are going to learn about fire and the role it plays in the forest. Let me ask you a question. Do you think fires are bad for the forest? Why or why not? Well, let's find out together while I tell you a story. While I tell this story, I want you to use your imagination to the fullest.

Lesson:

Now remember to use your imagination!

1:

A. Imagine a forest full of big, healthy trees. Between the trees are areas where the sunlight falls on the forest floor. Flowers, grasses and bushes are growing in the sunshine. Deer and elk wander into these clearings, eating the nice, green leaves. How many of you have seen deer and elk foraging in the forest?

B. Underneath the big trees are little trees that have sprouted from seeds the big tree has dropped.

A healthy forest in the Southwestern ponderosa pine ecosystem has trees that are well-spaced, allowing sunlight to reach the forest floor. Grasses and flowers abound.

Photo courtesy of the Ecological Restoration Institute, Northern Arizona University.

Forest Service Messages

A: The Forest Service applies the fundamental principles of science and ecology in order to better understand and manage forest ecosystems.
B: People are part of nature, and their actions have effects on the land.
A-1: Fire has a natural role in the ecosystem.
A-2: Southwest forests are primarily limited by water availability, not light.
B-1: People need to be careful with fire.
C-1: Prior to European settlement, Southwestern ponderosa pine forests had far fewer trees than today and had frequent, low-intensity surface fires.
C-3: Forest conditions now are not natural or healthy.
C-4: Because of unnaturally dense conditions, our forests are at risk for destructive wildland fires, insect infestations and diseases.

Academic Standards

Arizona Standards

SCIENCE

4SC-F1: Describe and explain cause-and-effect relationships in living systems
PO 1: Identify cause-and-effect relationships in living systems
PO 2: Explain cause-and-effect relationships in living systems
4SC-F2: Trace the life cycles of various organisms
PO 1: Identify the stages in a life cycle
4SC-F4: Identify characteristics of plants and animals (including extinct organisms) that allow them to live in specific environments
PO 1: Identify adaptations of plants that allow them to live in specific environments
PO 2: Identify adaptations of animals that allow them to live in specific environments

LANGUAGE ARTS

3LS-F1: Use effective vocabulary and logical organization to relate or summarize ideas, events and other information
R-F1: Use phonetic skills to decode words
PO 1: Decode words in context using beginning, middle and final letter/sound relationships
R-F2: Use word recognition and decoding strategies such as

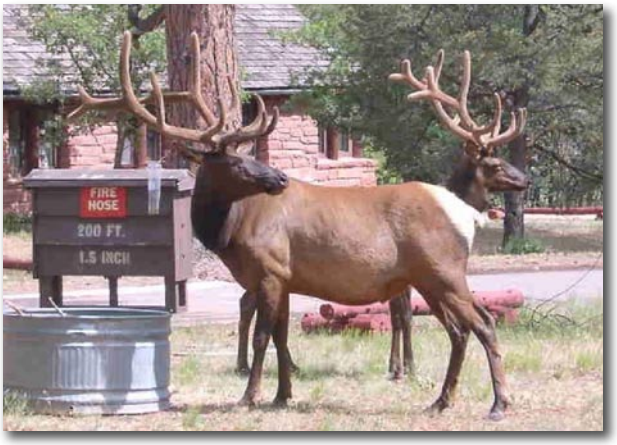
C. Over time, these little trees grow, sending their roots down into the soil and their branches up toward the sunlight. The forest is becoming more crowded with trees. In the clearing, some little trees have sprouted among the grasses, flowers and bushes, and these trees are growing too – their tiny branches casting shadows on the ground.

D. Over time, all the little trees grow bigger and bigger, taking food and water away from the bigger trees. In the clearings, the little trees are growing and making more and more shade. Underneath the trees, the grasses and flowers start to die because they need sunlight to live. Soon, the little clearing is filled in with trees. The grasses, flowers, and bushes are gone, and the deer and elk have no more green leaves to eat.

E. One day, lightning strikes in the forest, and a fire starts. The fire burns along the forest floor, burning up all the little trees and the sick, weak or old trees that are no longer strong enough to survive a fire. In the clearing where the flowers used to be, the fire removes all the little trees, and once again sunlight spills onto the forest floor.

F. After the fire, grasses and flowers grow once again. Where the old, sick trees used to be, sunlight bathes the forest floor allowing even more grasses and flowers to grow. Deer and elk again like to come here to nibble the nice, green leaves.

G. Then the big trees produce their seeds, the seeds fall to the forest floor, and little trees start to grow. Eventually, the little trees grow up, the grasses and bushes die, and it is time for another forest fire.



When a fire moves through an area, it recycles nutrients into the soil. Once the burned area receives a little rain, grasses sprout and provide a food source for animals like these elk.

phonetic skills, context clues, picture clues, word order, prefixes and suffixes to comprehend written selections

PO 1: Derive meaning from a written selection using reading/decoding strategies
- phonetic clues
- context clues
- picture clues
- word order
- structural analysis (e.g., prefixes, suffixes)
- word recognition

New Mexico Standards

SCIENCE

Strand I: Scientific Thinking and Practice

Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

K-4 Benchmark II: Use scientific thinking and knowledge and communicate findings.

Grade 3 Performance Standards

2. Understand that predictions are based on observations, measurements, and cause-and-effect relationships.

Strand II: Content of Science

Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

K-4 Benchmark I: Know that living things have diverse forms, structures, functions, and habitats.

Grade 3 Performance Standards

1. Know that an adaptation in physical structure or behavior can improve an organism's chance for survival (e.g., horned toads, chameleons, cacti, mushrooms).
4. Classify plants according to their characteristics (e.g., tree leaves, flowers, seeds).

K-4 Benchmark II: Know that living things have similarities and differences and that living things change over time.

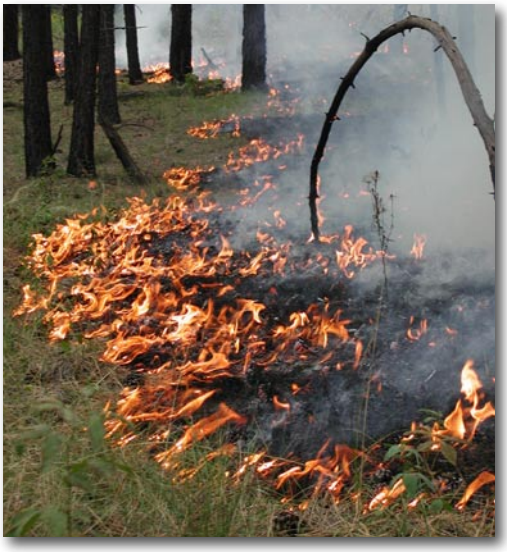
Grade 3 Performance Standards

1. Identify how living things cause changes to the environments in which they live, and that some of these changes are detrimental to the organism and some are beneficial.

LANGUAGE ARTS

Strand: Reading and Listening for

2. (Pull out the tree cookie and show the children what a fire scar looks like. Make sure they understand that by counting the fire scars, they can see how often the tree survived forest fires.) These fire scars show that in the past, fires were common and perfectly natural in a forest. (If you don't have a tree cookie with fire scars, pass out a drawing of a tree cookie with fire scars. Tell the children that some trees have nice, thick bark to help them survive fires. Show them a piece of ponderosa pine bark so they can see how thick it is.)



Fire is a natural part of the forested ecosystems of the Southwest. Without fire, the forest can become very unhealthy.

3. What would happen if the forest did not burn anymore? The forest would get too crowded. When a forest has too many trees, the trees get hungry and thirsty. (Show children a big cup with a straw in it.) Imagine that Smokey Bear was drinking from this cup. He would have plenty of water. Right? But, what if all the other animals in the forest – the squirrels, the rabbits, the birds, the deer – came and put their straws in the cup? (Put all the remaining straws in.) Would the water last very long? It is the same way with trees; if there are a lot of trees growing close together, then all the trees will be thirsty and hungry, and they won't be able to grow big and strong.

4. What would happen if someone left a campfire burning in a forest with lots and lots of trees? A fire could start. But, it probably wouldn't be a good fire like we talked about earlier. Good fires in the forest are ones that are hot enough to get rid of some of the little trees and the unhealthy trees but not hot enough to burn up all the bigger, healthier trees. A fire that started in a forest with lots and lots of trees would probably be a big fire. Think about it – doesn't a campfire get bigger if you add more wood to it? A forest fire is the same way; the more wood in the forest, the bigger a forest fire can get. Big fires can kill all the trees in the forest – young or old, sick or healthy. These big fires are bad fires. We call them wildfires.

Comprehension

Content Standard I: Students will apply strategies and skills to comprehend information that is read, heard, and viewed.

K-4 Benchmark I-D: Acquire reading strategies.

Grade 3 Performance Standards

1. Apply phonics and structural analysis to decode words (e.g., less common vowel patterns, syllable breaks).
5. Read aloud with fluency and comprehension grade-level text.
6. Increase vocabulary through reading, listening, and interacting.

SOCIAL STUDIES

Strand: Geography

Content Standard II: Students understand how physical, natural, and cultural processes influence where people live, the ways in which people live, and how societies interact with one another and their environments.

K-4 Benchmark II-B: Distinguish between natural and human characteristics of places and use this knowledge to define regions, their relationships with other regions, and patterns of change.

Grade 3 Performance Standards

1. Describe how human and natural processes can sometimes work together to shape the appearance of places (e.g., post-fire reforestation).
2. Explore examples of environmental and social changes in various regions.

K-4 Benchmark II-C: Be familiar with aspects of human behavior and man-made and natural environments in order to recognize their impact on the past and present.

Grade 3 Performance Standards

2. Identify ways in which people have modified their environments (e.g., building roads, clearing land for development, mining, and constructing towns and cities).
3. Describe the consequences of human modification of the natural environment (e.g., use of irrigation to improve crop yields, highways).

5. Many of our forests are crowded right now because they haven't burned in a long, long time. That means our forests are very dangerous. We have to be careful with fire like never before. If we are careless with fire now, we can start a wildfire that sweeps through the forest and kills all the trees. What are some ways that fires get started in the woods? What can you do to help make sure that fires don't start?

Closing

Now, let's review some of the main things we just learned about.

1. Fires are a natural part of the forest's life cycle. When they burn through the forest on a regular basis, they remove young, sick, weak and old trees, leaving the healthy trees to grow big and strong. These fires are "good" fires.
2. If a forest hasn't burned in a long time, it will get crowded and unhealthy. A forest fire in a crowded forest can get very large and dangerous. These "bad" fires are called wildfires.
3. We have to be very careful with fire in the forest. Our forests are very, very crowded, and if we're careless, we will start a wildfire that may destroy the forest.

Activity

Interactive Zip Game

Is everyone ready to play a game now? This is a very special game because not only is it fun, but it also gives us more information on what we were learning about! First, let me ask you some questions to get you ready for the game. How many of you think you know everything about fire in the forest now? So, what is a wildfire? Is fire good or bad? How can we all help to prevent the bad kind of wildfires?

This game is going to help us understand how we affect our environment and how our environment affects us. Think about fire. How does fire affect us? How can we affect fire?

(The Interactive Zip Game consists of 30 Fire Education question and answer cards. These cards are keyed in such a way that the question on the front of one card requires an answer that appears as a graphic on another game card. Every card must be used in order to complete the game, so if there are

Forest Service Conservation Education Learner Guidelines

Program title: The Story of a Forest
Target audience: Third Grade
Primary topic: Fire is part of the forest's life cycle.

Length of program: 1 hour

Setting: indoors or outdoors

Guidelines addressed are referenced here:

K-4
I. Questioning and Analysis Skills
A1
II. Knowledge of Environmental Processes and Systems
1.
2. A1, C1, C2, D1, D3
3.
4. A2
III. Skills for Understanding and Addressing Environmental Issues
1. A1
2.
IV. Personal and Civic Responsibility
B2, C1, D2

fewer than 30 students in the class, give some children more than one card until all the cards have been passed out.)

Now, here are the rules. You must speak clearly when you read the question on the front of your card so that everyone will understand what the question is. Then, the rest of the class must listen carefully to see if he or she is holding the card that has the answer to the question.

The teacher and presenter will now pass out the cards to all the students. Some students may get more than one card if there are fewer than 30 students in the class. **Do not hand out the card with the entire answer key on it.** This is on the back of the game instruction card. The speaker should keep this card handy so that he/she will know if the student has the correct answer to the question.

1. The teacher and speaker will then give students time to read their cards. This may take a few minutes to review the educational message on the back of the cards.

2. The game will begin by the student holding card number 1 and he/she will read the question on his/her card. The holder of the card with the correct answer should read the answer to the class. The answer card has the answer on the front at the top of the card and the back of the card explains the answer in more detail including the animal, habitat, history and geography affected by the fire.

3. Next the holder of card number 2 will ask his/her question at the bottom of the card and another student will be able to provide the answer. Then card holder number 3 reads his/her question, and so on through the end of the game. The game ends when all the questions have been asked and answered. (The card numbers are not sequential – 1, 2, 3, etc. but the answer card tells which card number answers which). Also, there are a couple that are similar, so if there's some hesitation or duplication, just use the answer card to check who has which number. You can say, "That's good, but there's a better answer."

Closing

Wasn't that fun! Does anyone have any questions about what we've talked about so far? Now I'm going to give you a really fun activity book related to what we have learned today. (If there is extra time, pick an activity to do as a group.)

A class of students listens to a presentation and watches a demonstration related to fire.

Handout

"Discover Fire Education" or "Activity Book for Smokey's Friends"

Options for interpretive program done at a campground:

You can do a safe campfire demonstration. Have the kids sit in a circle 10 feet away from where the fire will be. Start building a campfire and go over safe procedures while you are doing this. You will need a shovel, a bucket and a few pieces of wood.

To start a fire, you should:

1. Help a grown-up pick an open, level spot for the campfire.
2. Help check for overhanging tree branches.
3. Help clear away dry leaves, twigs and grass to make a 10-foot circle of safety around the fire.
4. Make sure the grown-ups have water handy before they start the fire.
5. Have the grown-up start the fire, and make sure the grown-up adds one stick at a time to control the size of the fire.
6. Remember that running or playing near the fire is unsafe.
7. Make sure the grown-up watches the fire at all times.

To put a fire out safely, you should:

1. Have a grown-up sprinkle water over all parts of the fire and gently stir the remains of the fire.
2. Be sure the grown-up stirs the fire and sprinkles water until all the steaming and sizzling has stopped.
3. Remind the grown-up never to leave a fire until the fire is out cold.

Be Smokey's helper. Be careful with fire, and remind grown-ups to be safe with fire too.

1. Never play with matches.
2. Never use firewood unless an adult is watching.
3. Remind grown-ups to never throw cigarettes on the ground.

Supplies

- Tree cookie showing fire scars or picture of a tree cookie with fire scars
- Piece of ponderosa pine bark
- Drinking glass with water
- Straws (several)
- Interactive Zip Game
  - Available through National Symbols Catalog
  - An interactive game for groups of up to thirty. Questions and graphics cover fire ecology, fire behavior, recreational and home fire safety, fire suppression, and wildland/urban fire protection. Includes sample lesson plan and instructions.
- "Discover Fire Education" or "Activity Book for Smokey's Friends" – one per student
  - "Discover Fire Education": Available through National Symbols Catalog. A 16-page color/activity book featuring the Fire Education Team with numerous puzzles and activities that involve fire ecology, wildland and home fire safety.
  - "Activity Book for Smokey's Friends": Available through National Symbols Catalog. Eight-page, black and white fire prevention activity and game book for children; perfect for classrooms and community youth groups as a reminder to Smokey Bear's helpers in fire prevention. Book includes: fire hazards exercise, forest crossword, add-a-line activity, forest word find, picture this activity, Smokey rebus, and Smokey's five rules of fire prevention education.

For campfire program only:

- Shovel
- Bucket
- Pieces of wood